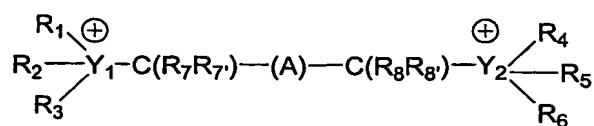


CLAIMS:

1. A compound of Formula (I)



(I)

wherein

Y_1 and Y_2 may be the same or different and are independently selected from N and P;

R_1 to R_6 may be the same or different and are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), $OC(O)(C_{1-6}$ alkyl), NO_2 , amino, hydroxy C_{1-6} alkyl, aryl, $OC(O)Ph$, and $=C(Ph)_2$; or

R_1 and R_2 together with the Y_1 group to which they are attached, or R_1 , R_2 and R_3 together with the Y_1 group to which they are attached may optionally form a heterocycloalkyl group; and R_4 and R_5 together with the Y_2 group to which they are attached, or R_4 , R_5 and R_6 together with the Y_2 group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), $OC(O)(C_{1-6}$ alkyl), NO_2 , amino, hydroxy C_{1-6} alkyl, aryl, $OC(O)Ph$, and $=C(Ph)_2$;

R_7 , R_7' , R_8 and R_8' may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C_{5-7} cycloalkyl, and $-C(O)-$, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, NO_2 , $C(O)R_{10}$, OR_{11} , CH_2OR_{11} , $CH_2NR_{12}R_{13}$, SR_{11} , $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

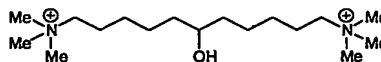
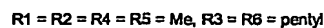
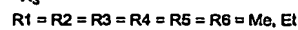
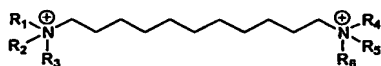
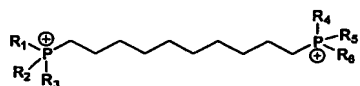
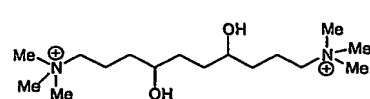
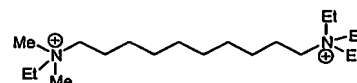
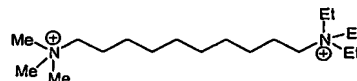
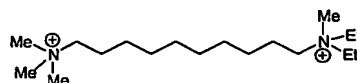
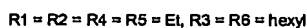
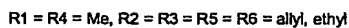
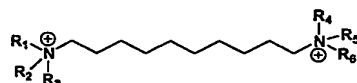
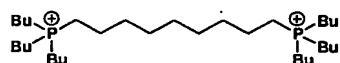
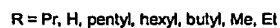
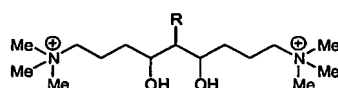
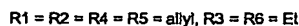
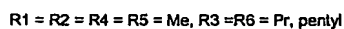
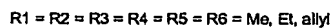
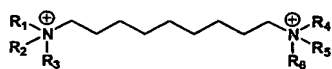
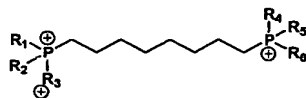
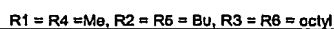
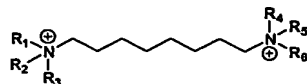
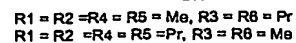
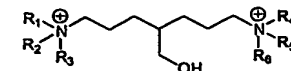
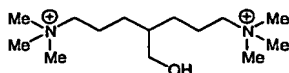
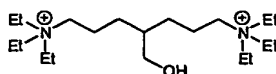
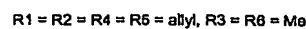
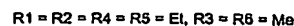
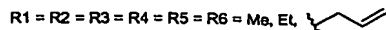
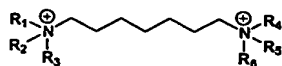
R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl,
5 wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

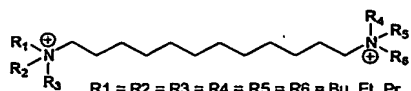
R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted
10 aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

15 and salts thereof,

provided that the compound of formula (I) is not selected from the following:

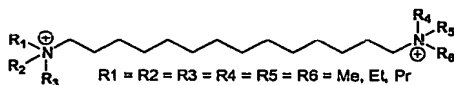
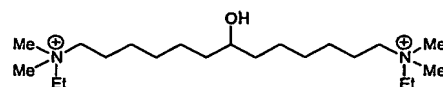
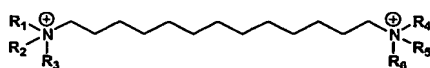
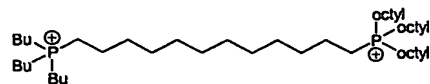
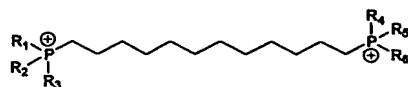
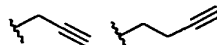




$R_1 = R_2 = R_4 = R_5 = \text{Me, } R_3 = R_6 = \text{Bu, Et, heptyl, nonyl,}$

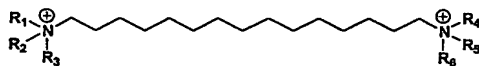
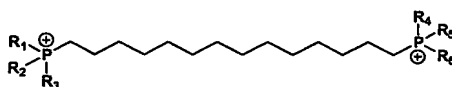
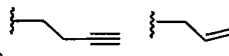
$R_1 = R_2 = R_4 = R_5 = \text{allyl, } R_3 = R_6 = \text{Me, Et}$

$R_1 = R_2 = R_4 = R_5 = \text{hexyl, } R_3 = R_6 = \text{Me}$

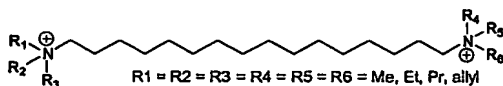


$R_1 = R_2 = R_4 = R_5 = \text{Me, } R_3 = R_6 =$

$R_1 = R_4 = \text{Me, } R_2 = R_5 = \text{Et, } R_3 = R_6 = \text{Pr}$



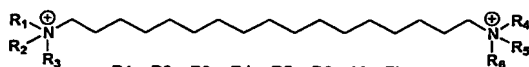
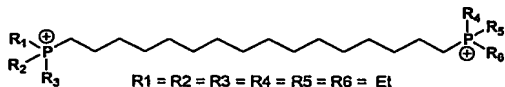
$R_1 = R_4 = \text{Me, } R_2 = R_5 = \text{Et, } R_3 = R_6 = \text{Pr}$



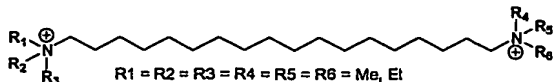
$R_1 = R_2 = R_4 = R_5 = \text{Me, } R_3 = R_6 = \text{Et}$

$R_1 = R_2 = R_4 = R_5 = \text{Et, } R_3 = R_6 = \text{Me}$

$R_1 = R_4 = \text{Me, } R_2 = R_5 = \text{Et, } R_3 = R_6 = \text{Pr}$

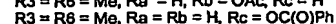
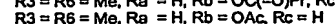
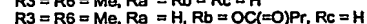
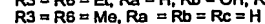
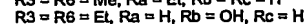
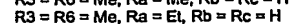
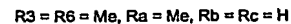
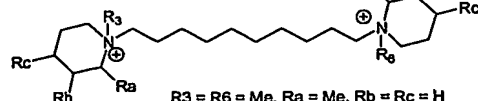
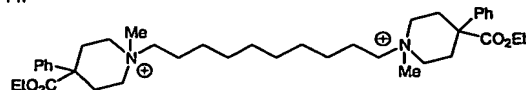
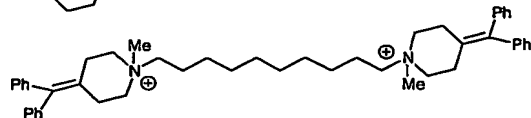
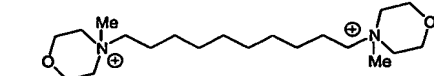
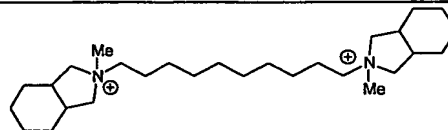
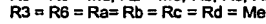
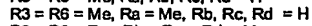
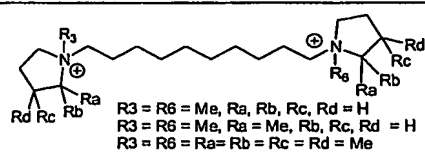
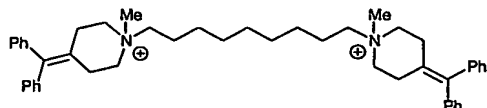
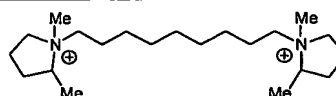
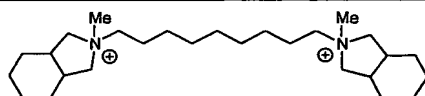
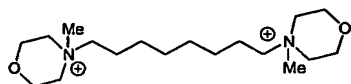
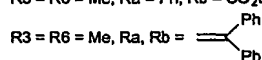
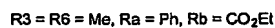
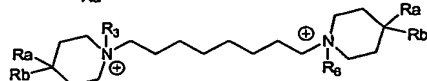
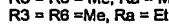
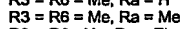
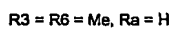
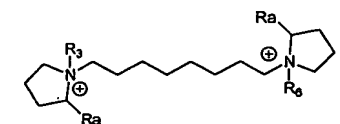
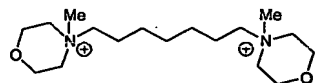
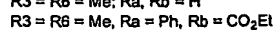
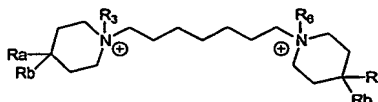
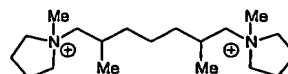
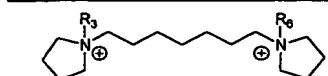
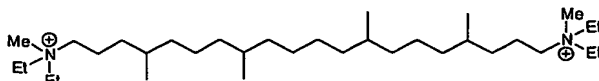
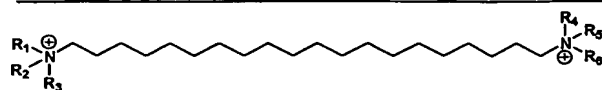
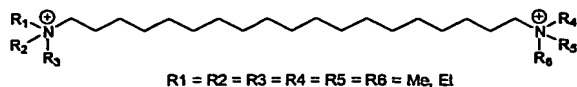


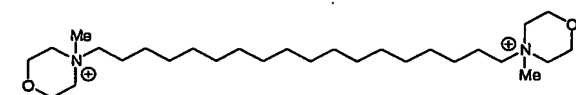
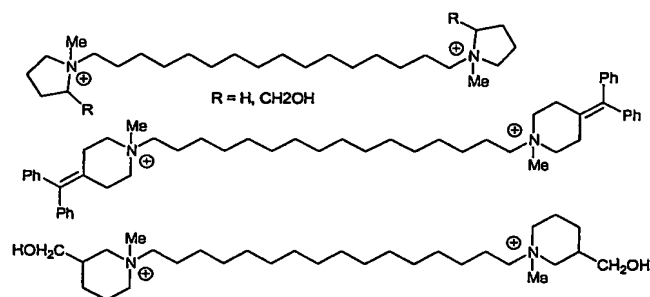
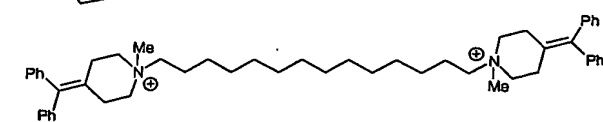
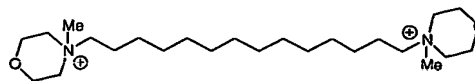
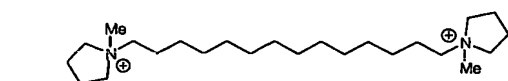
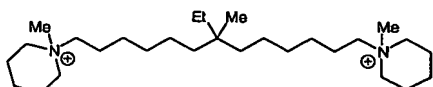
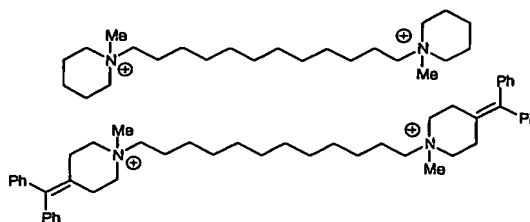
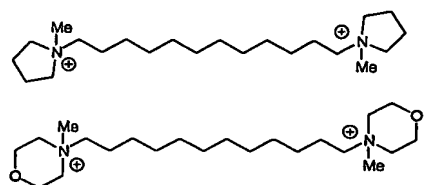
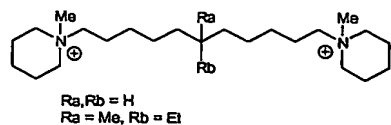
$R_1 = R_4 = \text{Me, } R_2 = R_5 = \text{Et, } R_3 = R_6 = \text{Pr}$



$R_1 = R_2 = R_4 = R_5 = \text{Et, } R_3 = R_6 = \text{Me}$

$R_1 = R_4 = \text{Me, } R_2 = R_5 = \text{Et, } R_3 = R_6 = \text{Pr}$





2. A compound according to claim 1, wherein Y₁ and Y₂ are each N.
3. A compound according to claim 1, wherein R₇, R₇', R₈, and R₈' are each
5 hydrogen.
4. A compound according to claim 1, wherein R₁ to R₆ are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₁₋₁₀ alkylene, optionally substituted aryl, and optionally substituted heterocycloalkyl, or
10 R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached form a heterocycloalkyl group; and

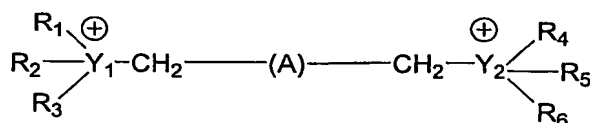
R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached form a heterocycloalkyl group;

wherein said optional substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, and aryl.

5. A compound according to claim 1, wherein A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted phenyl, and -C(O)-, wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl.

6. A compound according to claim 1, wherein the length of A is from 5 to 9 carbon atoms.

7. A compound according to claim 1, of Formula (Ia):



(Ia)

wherein

Y₁ and Y₂ may be the same or different and are independently selected from N and P;

R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, and OC(O)Ph; or

R₁ and R₂ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), amino, hydroxy C₁₋₆ alkyl, and aryl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, and optionally substituted phenyl, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, halogen, C(O)R₁₀, OR₁₁, SR₁₁, CH₂OR₁₁,
 5 CH₂NR₁₂R₁₃, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, and
 10 optionally substituted C₃₋₁₀ cycloalkyl, wherein said optional substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, aryl, and hydroxyl;

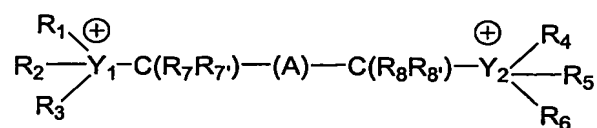
R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted
 15 alkylheteroaryl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, aryl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, amino, and
 20 C(O)OR₁₁,

and salts thereof.

8. A compound according to claim 1, selected from 1,11-bis-(tributylammonium)undecane, 1,16-bis-(tributylammonium)hexadecane, 1,12-bis-(tripentylammonium)dodecane, 1,12-bis-(triethylammonium)dodecane, 1,12-bis-(trioctylammonium)dodecane, 1,12-bis-(triisobutylammonium)dodecane, 1,12-bis-(triisopentylammonium)dodecane, and 1,12-bis-(1-butylpyrrolidinium)dodecane, and salts thereof.

9. A method for one or more of treating, inhibiting, and preventing a microbial infection in a vertebrate, said method comprising administering to said vertebrate an
 30 effective amount of at least one compound of Formula (II):



(II)

wherein

Y_1 and Y_2 may be the same or different and are independently selected from N and P;

R_1 to R_6 may be the same or different and are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), NO_2 , amino, hydroxy C_{1-6} alkyl, aryl, $OC(O)Ph$, and $=C(Ph)_2$; or

R_1 and R_2 together with the Y_1 group to which they are attached, or R_1 , R_2 and R_3 together with the Y_1 group to which they are attached may optionally form an heterocycloalkyl group; and R_4 and R_5 together with the Y_2 group to which they are attached, or R_4 , R_5 and R_6 together with the Y_2 group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, and halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), NO_2 , amino, hydroxy C_{1-6} alkyl, aryl, and $=C(Ph)_2$;

R_7 , R_7' , R_8 and R_8' may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted phenyl, optionally substituted C_{5-7} cycloalkyl, and $-C(O)-$, wherein the length of A is from 4 to 18 carbon atoms, wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, nitro, $C(O)R_{10}$, OR_{11} , CH_2OR_{11} , $CH_2NR_{12}R_{13}$, SR_{11} , $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R_{10} is selected from OH, OR_{11} , C_{1-6} alkyl, optionally substituted amino- C_{1-6} -alkylsulfonate, optionally substituted amino- C_{1-6} -alkylphosphonate, optionally substituted amino- C_{1-6} -alkyl-guanidiny, and optionally substituted amino- C_{1-6} -alkyl-tri(C_{1-6} -alkyl)ammonium;

R_{11} is selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted amino- C_{1-6} -alkylsulfonate, optionally substituted amino- C_{1-6} -alkylphosphonate, optionally substituted amino- C_{1-6} -alkyl-guanidiny, and optionally

substituted amino-C₁₋₆-alkyl-tri(C₁₋₆-alkyl)ammonium, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted arylalkyl, optionally substituted alkylheteroaryl, optionally substituted amino-C₁₋₆-alkylsulfonate, optionally substituted amino-C₁₋₆-alkylphosphonate, optionally substituted amino-C₁₋₆-alkyl-guanidiny, and optionally substituted amino-C₁₋₆-alkyl-tri(C₁₋₆-alkyl)ammonium, wherein said substituents are independently selected from C₁₋₃ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₃ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁.

10. The method according to claim 9, wherein said compound is a compound of Formula (I) as defined in claim 1.

11. The method according to claim 9, wherein the microbial infection is selected from one or more of bacterial, fungal, viral, and parasitic infection.

12. The method according to claim 11, wherein the infection is a fungal infection.

13. The method according to claim 11, wherein the infection is a bacterial infection.

14. A method of inhibiting phospholipase in an organism comprising contacting said organism with an effective amount of at least one compound of Formula (I) or at least one compound of Formula (II).

15. The method according to claim 14, wherein the organism is selected from bacteria, fungi, virus, and parasite.

16. The method according to claim 14, wherein the phospholipase is Phospholipase B.

17. A method for identifying an antimicrobial agent comprising contacting microbial cells with a compound of Formula (I) or Formula (II) suspected of having antimicrobial properties, determining whether said compound inhibits a microbial phospholipase enzyme, wherein inhibition of said phospholipase enzyme indicates antimicrobial activity, and thereby identifying an antimicrobial agent.